

REMARKS

Claims 1-33 are pending in the application. Claims 1-6, 8-12, 14-23, 25029, 31 and 33 are rejected by the Examiner. The Examiner objects to claims 7, 13, 24, 30 and 32. The Examiner's objections and rejections are addressed below in substantially the same order as in the office action. Claims 17 and 33 have been canceled.

REJECTIONS UNDER 35 USC § 102

1. Moyes

The Examiner rejected Claims 1, 2, 5, 6, 8, 10-12, 14, 16-19, 22, 23, 25, 27-29, 31, and 33 under 35 USC § 102(e) as being anticipated by Moyes (U.S. 6,719,071).

The Examiner contends that Moyes discloses all of the claimed inventions including a fluid circuit shown in Figs. 1 and 3, for supplying a drilling fluid to a drill bit and returning the drilling fluid from the drill bit to the surface. The Examiner further contends that the fluid circulation device in the return fluid is met by pumps 34, 36, which provide up-lifting energy or motive force for the flowing the return fluid to the surface (col. 5, lines 15-29) and that the "supply line" and "the return line" are met by the drill string 12 and the annulus 17 respectively.

Applicant respectfully submits that Moyes does not teach or suggest a fluid circulation device in the return fluid that provides the primary motive force for flowing the return fluid from the drill bit to the surface location. Instead, as explained below, Moyes purports to teach a pump that reduces "ECD" effects arising from operation of a surface primary motive force (pump) for flowing drilling mud.

Moyes purports to teach a pump in the wellbore that reduces the effect of ECD when surface pumps circulates drilling mud in a wellbore. The Specification clearly describes the intended use and application of the disclosed wellbore pump:

Embodiments of the invention relate to a drilling method and apparatus where the effective circulating density (ECD) of drilling fluid (or drilling "mud") in

communication with a hydrocarbon-bearing formation is lower than would be the case in a conventional drilling operation. (Field of the Invention)

Indeed, Moyes begins its detailed description by describing a conventional drilling system having a surface pump:

Reference is first made to FIG. 1 of the drawings, which illustrates a conventional drilling operation. A rotating drill string 12 extends through a borehole 14, and drilling mud is pumped from the surface down the drill string 12, to exit the string via jetting ports in a drill bit 16, and returns to the surface via the annulus 17 between the string 14 and the bore hole wall. Col. 4, lines 61-67 (emphasis added).

In the Background, Moyes explains that the conventional circulation of drilling mud in extended reach wells can result in wellbore pressures that can damage the drilled formation. Col. 2., lines 6-20.

Moyes proposes to reduce the wellbore pressure by reducing the equivalent circulating density (ECD) by positioning a pump in the wellbore. Moyes asserts that operation of the wellbore reduces ECD and therefore reduces the pressure applied to the formation. Moyes in Figure 2 illustrates a pressure gradient in a wellbore that is associated with drilling mud circulated by surface pumps (Col. 5, lines 1-9) and in Figure 5 illustrates the shift in the Figure 2 pressure gradient caused by the operation of the wellbore pump. Col. 5, lines 30-50. As can be seen the described wellbore pump only shifts a small portion of the pressure gradient as shown by the dashed line in Figure 5. The pressure gradient, however, is substantially the same as that shown in Figure 2, which is expressly attributed to circulation by the surface pumps. Since the majority of the pressure gradient is due to the surface pumps, the wellbore pump plainly is not the primary motive force for circulating drilling fluid.

In no instance does Moyes teach or suggest the use of a wellbore pump for a use other than to reduce ECD effect caused by circulating drilling mud with surface pumps. Therefore, Applicant respectfully submits that independent claims 1 and 18 are not anticipated by Moyes and are in condition for allowance. Furthermore, claims 2, 5, 6, 8, 10-12, 14, 16, 19, 22, 23, 25, 27-29, and 31 depend from either claims 1 and 18, both of which are believed in condition for allowance. Thus, Applicant submits that these claims are allowable on at least such grounds. Claims 17 and 33 have been canceled.

2. Messenger

The Examiner rejected claims 1-6, 9, 12, 14, 18-23, and 26 under 35 USC 102(b) as being anticipated by Messenger (US 4,368,787).

Applicant observes that the Examiner did not reject claim 17 or 33 as anticipated by Messenger. The salient recitations of claims 17 and 33 now appear in independent claims 1 and 18. Thus, Applicant believes that independent claims 1 and 18 as amended are not anticipated by Messenger and in condition for allowance. Furthermore, claims 2-6, 9, 12, 14, 19-23, and 26 depend from either claims 1 and 18, both of which are believed in condition for allowance. Thus, Applicant submits that these claims are allowable on at least such grounds.

REJECTIONS UNDER 35 USC § 103

The Examiner rejected claim 15 under 35 U.S.C. 103(a) as being unpatentable over Moyes (US 6,719,071). Claim 15 depends from claim 1, which is believed to be in condition for allowance. Thus, Applicant submits that these claims are allowable on at least such grounds.

CLAIM OBJECTIONS

The Examiner indicated that claims 7, 13, 24, 30 and 32 would be allowable if rewritten in independent form. Applicant has not so amended these claims because they depend from claims believed to be in condition for allowance.

CONCLUSION

For all the foregoing reasons, Applicant submits that the application is in a condition for allowance. No fee is believed due for this paper. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. **02-0429 (414-29962-US)**.

Respectfully submitted,

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CERTIFICATE OF MAILING

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